I CLAIM

1. An ultraviolet radiation curable organic ink composition for glass substrates, which comprises:

(i) an ultraviolet radiation curable ink composition including (a) 80 to 95% by weight of an epoxy-polyurethane ink; and (b) 0.5% to 8% by weight of an additive including a mixture of polyethylenic waxes and polythetrafluorethylenic waxes; and

(ii) 1 to 8% by weight of a blocked aliphatic polyisocyanate catalyst.

2. The ultraviolet curable organic ink composition in accordance with claim 1, further comprising an adhesion promoter primer to be independently applied to the glass substrate before the ink composition, so that the blocked aliphatic polyisocyanate catalyst promotes a polymerization reaction and a crosslinking reaction between the epoxy-polyurethane-based ink and the adhesion promoter, when heated to at about 160 to 200°C, forming an interpenetration network.

3. The ultraviolet curable organic ink composition in accordance with claim 2, wherein the adhesion promoter primer is a trimethoxy-silane.

4. The ultraviolet curable organic ink composition in accordance with claim 2, wherein the adhesion promoter primer is N-B-(N-vinyl-benzyl-amino)ethyl-γ-aminopropyltrimethoxy-silane monohydrogen chloride.

5. The ultraviolet curable organic ink composition in accordance with claim 1, wherein the adhesion promoter primer is a diluted solution of a hydrolyzed silane at a concentration of 0.5 to 5.0% by weight, in a mixture of water and ethyl alcohol acidified with acetic acid or carbon dioxide, to a pH of 5.0 to 6.0.

6. An ultraviolet radiation curable organic ink composition for glass substrates, which comprises:

(i) an ultraviolet radiation curable ink composition including (a) 80 to 95% by weight of an epoxy-polyurethane ink; and (b) 0.5% to 8% by weight of an additive including a mixture of polyethylenic waxes and polythetrafluorethylenic waxes;

(ii) 1 to 8% by weight of a blocked aliphatic polyisocyanate catalyst; and

(iii) an adhesion promoter primer including 0.15% to 3% by weight of a silane.

7. A process for applying an ultraviolet curable ink composition to a substrate, comprising the following steps:

a) preparing an ultra-violet radiation curable ink composition by:

iii) mixing 80% to 95% by weight of an epoxy-polyurethane ink; and 0.5% to 8% by weight of an additive prepared from a mixture of polyethylenic waxes and polythetrafluorethylenic waxes, strongly stirring the mixture; and

iv) adding from 1 to 8% by weight of a blocked aliphatic polyisocyanate catalyst;

b) independently applying an adhesion promoter primer composition comprising 0.15% to 3% by weight of a silane, to a surface of the substate;

c) applying the ultra-violet radiation curable ink composition on the glass substrate, by serigraphy or tampography;

d) curing the ink composition on the substrate by exposing the substrate to an ultra-violet radiation; and

f) heating the substrate to increase its temperature between 165° to 200°C in order that the blocked aliphatic polyisocyanate catalyst promote a crosslinking reaction between the epoxy-polyurethane-based ink and the adhesion promoter, forming an interpenetration network.

8. The process as claimed in claim 7, wherein the heating of the substrate is carried out by passing it through a heating lehr.

9. The process as claimed in claim 7, further comprising: applying an oleic acid lubricant agent as a gas or vapor, on the cured and heated and/or spraying an aqueous ethoxylated polyethylene emulsion, on the portion of the glass substrate including the ink composition.

10. The method of claim 7, comprising separately preparing the adhesion promoter primer by firstly hydrolyzing the primer by preparing a mixture of silane and 0.7 to 1% of demineralized water; letting the mixture to rest for 24 hours in order that the hydrolyzing take place; and then preparing a diluted solution with the hydrolyzed silane at a concentration of 0.5 to 5.0% by weight, in a mixture of water and ethyl alcohol acidified with acetic acid or carbon dioxide, to a pH of 5.0 to 6.0; and applying this solution on a surface of a glass substrate by spraying, dipping or wiping the substrate in said solution, and then drying the so treated substrate by heating at 100°C to 150°C, for a time of 5 to 25 minutes.

11. The method of claim 10, wherein the step of drying the substrate treated with the hydrolyzed primer diluted solution is carried out by heating the glass substrate at 110°C for 15 minutes.

12. A process for applying an ultraviolet curable ink composition to a substrate, comprising the following steps:

a) preparing an ultra-violet radiation curable ink composition by:

i) mixing 80% to 95% by weight of an epoxy-polyurethane ink; and 0.5% to 8% by weight of an additive prepared from a mixture of polyethylenic waxes and polythetrafluoroethylenic waxes, strongly stirring the mixture;

ii) adding from 1 to 8% by weight of a blocked aliphatic polyisocyanate catalyst;

iii) adding an adhesion promoter primer composition comprising 0.15% to 3% by weight of a silane;

b) applying the prepared ink composition on the glass substrate, by serigraphy or tampography;

c) curing the ultra-violet radiation curable ink composition by exposing the coated surface to an ultra-violet radiation;

d) heating the substrate by passing it through a heating lehr to increase the substrate temperature between 165° to 200°C in order that the blocked aliphatic polyisocyanate catalyst promote a polymerization reaction and a crosslinking reaction between the epoxy-polyurethane-based ink and the adhesion promoter, forming an interpenetration network.

13. The process as claimed in claim 12, further comprising: applying an oleic acid lubricant agent as a gas or vapor, on the cured and heated and/or spraying an aqueous ethoxylated polyethylene emulsion, on the portion of the glass substrate including the ink composition.